PHOTO ERA

VOL. I JUNE, 1898. No. 2

War Photography

T. H. CUMMINGS

IT'S ill wind that don't blow somebody good, and from a photographer's point of view, the war will prove a real blessing. It has already furnished material for the camera which every day peace conditions would never have furnished. The professional photographers have been kept busy making photographs of the soldiers who have departed for the front, while thousands of soldiers — amateurs — have gone prepared to take snap shots of the scenes they hope to witness. Enterprising publishers have sent their representatives to the war to secure photographs of scenes, and incidents of public interest, which they reproduce and sell as *war pictures*.

The mustering in of the volunteers and national guard into the United States army, the numerous flag raisings throughout the country, all have furnished scenes and incidents for this purpose, in abundance.

Finally, it is said that thousands of fine photographs have been filed in the Army and Navy Departments, by both army and navy officers. Fortunately, in recent years, photography has been made a study at both West Point and Annapolis, and many of the leading officers are now as expert at taking pictures as they are in other branches of their profession. It is generally recognized that a photograph explains many things that officers possessed of the most valuable descriptive powers would be unable to explain without it. So that, when the reports of the war with Spain are prepared they can be most thoroughly illustrated by these photographs. It is evident that the day of the pen picture, unaccompanied by photographs, is gone forever. No description will be complete, however eloquent or vivid, without the pictured story of a photograph to illustrate it. A good photograph will leave an impression that words can never make.

Among the 90,000 soldiers now at Tampa, Chickamauga, and other places, there are, at the lowest calculation, several hundred who are thoroughly prepared to take snap shots, who will be the means of permanently preserving in a pictorial way every scene and incident in which they take any part. Again we say, blessings always come in disguise, and this war will prove a blessing to the various makers of cameras and other paraphernalia and material that is used

in connection with the up-to-date photographic art. The soldier boys are already loading down the mails with the photos they have taken, and it will not be long before the government will not only have a picture of each organization in the service, but also of every soldier and sailor who is participating in the war, and every temporary and permanent camp and camp outfit. Thus will a comprehensive view of the war in all its manifold details be ready for the future historian and the generations to come.

So that the cloud of war has a silver lining for some of us, and we close as we began, with the old familiar saying that it is an ill wind that doesn't blow somebody good.

Negative by Joseph P. Loud

"SURF," NANTASKET ROCKS

On Shutters

BY W. ALBERT HICKMAN

THE diaphragm shutter is composed of a number of small blades arranged on all sides of the axis, which, in making the exposure, move away simultaneously, thus beginning the exposure with an infinitely small opening, gradually increasing to the full size of the stop for which the exposure is set, and closing by reversing this motion.

From a theoretical optical point of view, this should give more depth to the picture than any other form of exposure; but in practice this result is so slight — as a general rule, I fail to detect any — that it hardly seems to warrant the extra complications incurred, and, as an offset to any theoretical advantage, this form of shutter possesses in the highest degree the greatest disadvantage an instantaneous shutter can have, that of passing little light compared with the length of exposure. This has been so thoroughly realized by one maker of this type of shutter, that he has disclaimed its fitness for so-called "lightning" work entirely.

The only examples I know of this variety of instrument have pneumatic speed regulation. All the types of shutters mentioned are accompanied by rotating stops, or iris diaphragms to alter the aperture, but the shutter blades in this form take on that function, and can be set to open just the required distance. In common with all complicated metallic shutters, these are inclined to freeze up in extreme cold, and to break down if at all roughly used, or sometimes even without being

roughly used, and in the event of this happening, an entire watchmaker's repair kit is needed to fix them. A new shutter of this type, which I have not seen as yet, and consequently do not know the merits of, has been brought out by Goerz.

Negative by Joseph Prince Loud

"SURF," NANTASKET ROCKS

I have reserved the fifth form, the roller-blind type, until the last, as it has representatives in both the great classes of instruments, those which work at the lens, and those which work at the focal plane. The roller-blind shutter consists simply of a light-proof cloth blind, in which is cut a rectangular hole. On opposite sides of the lens axis are two rollers, and the blind rolls from one to the other on pressing the exposure bulb. One of these cylinders contains a spiral spring which can be wound up, thus increasing the speed from one-fifteenth up to one-ninetieth of a second. The other, projecting from the side of the shutter, is geared into a larger cog wheel, which, by setting a lever, can be stopped after having made half its revolution, thus stopping the blind with the aperture opposite the lens and making a time exposure. On releasing the pressure upon the bulb, the blind goes on, and the exposure is finished. One movement of the lever changes the shutter to instantaneous. It is set by pulling a cord which winds up the blind.

As the entire case is formed of mahogany, and as the metal used in the construction is the acme of simplicity, and, with the exception of the spiral spring is entirely outside, and therefore perfectly accessible, this shutter is, I believe, less likely to get out of order than any other made. I use one of these shutters now entirely for time exposures, and moderately rapid instantaneous work, and rain or shine, warm or cold, it has never once failed. In shape it is rectangular, and it may not be so beautiful as some of the soul-endangering affairs of shining brass and glittering steel; but if my reader seeks for beauty alone — this is not saying that the roller-blind shutter is not beautiful — I am sorry that he or she has read so far, for this article can be of no interest to him or her. My shutter is on the front of my lens where it can be removed in an instant and the lens changed for another, and I have never been able to find any trace of distortion whatever.

But the acknowledged leader of high speed instantaneous shutters does not belong to the types we have been considering. As far as I know the highest speed attained by any shutter working at the lens is one five-hundredth of a second. This relatively enormous velocity is attained by the "Celeritas" shutter of Newman and Guardia, which is of the revolving single plate type. This is almost equalled by the "Athlete" of the Prosch Manufac-

turing Company, for which a speed of one four-hundredth of a second is claimed.

For the highest speed, however, taking pictures of objects in the most rapid motion, we must go to the focal plane shutter spoken of earlier. As its name indicates this type works just in front of the plate and as near it as possible. It consists of a rectangular frame fitted to the back of the camera into which the plate holder or roll holder slides directly. Through this frame is an opening just the size of the plate, across which runs a roller blind resembling that of the lens shutter on a much larger scale with the exception that the portion of the blind attached to one roller is connected to that of the other by two chains by which the width of the slit between them may be altered from the full width of the plate down to one tenth of that width. By this device a speed of one-thousandth of a second can be attained in the following manner: Suppose that with the slit wide open—the full breadth of the plate—the blind be driven past the opening at such a rate that the slit pass across the plate in one hundredth of a second. If then, by means of the chains, the slit be reduced to one tenth of the width of the plate and the blind driven across again at the same rate as before, it is very evident that any particular point on the plate will receive only one tenth as much exposure as before, or one tenth of one hundredth, equal to one thousandth of a second. In practice, however, the slit is never made to open to the full width of the plate. So by merely winding up the spring with the slit wide open any speed from one twentieth to one hundredth of a second can be obtained; and by reducing the width of the slit this can be decreased from one-hundredth up to one thousandth with all intervening speeds, giving this shutter the enormous range of from one-twentieth to one thousandth of a second. In the lower half of the blind is a rectangular opening the full size of the plate which is altogether independent of the slit and which by winding the shutter up further than is done when setting can be used to focus on the ground glass. Thus this shutter does not interfere with the employment of a time and instantaneous shutter at the lens.

Now let us see just wherein lies the superiority of this construction over the lens form in rapid instantaneous work. It is axiomatic that a perfect instantaneous shutter must open in as short a space of time as possible, so as to allow the full amount of light that the lens is capable of passing to fall upon the plate immediately; and that after remaining thus open for the full length of the exposure—though this exposure may be but one hundredth of a second—it must close as quickly as it opened, the result being that the greatest possible amount of light from the object may act upon the plate throughout the period between opening and closing.

How far this is realized in any form of lens shutter we can readily see; for in this case the exposure begins as soon as the first ray of light reaches the plate, but the full illumination is not attained until the lens is entirely uncovered. Then the light wanes again as the shutter closes and the exposure is not completed until the last ray is barred from entering. Thus during the greater part of the exposure the illumination is but a fraction of that which the lens is capable of giving, and only for an instant is the possible illumination attained.

But with the focal plane shutter this is all changed. The instant the lower edge of the slit passes any point on the plate, thus allowing the light from the lens to reach it, that point receives every ray of light the lens is capable of giving it, and this light acts upon it until the upper edge of the slit cuts it off as quickly as it was first admitted. The amount of time it takes for any point on the plate to pass

from darkness to complete illumination is the amount of time it takes for a line to pass any point when it is moving at right angles to itself and that point. This is infinitely small; for convenience we will call it one millionth of a second. So here we have a shutter which opens in one millionth of a second, remains open for the full length of the exposure, and closes in the same time. The only thing ever claimed against the focal plane shutter is, that as all parts of the plate are not exposed at the same time, the part which is exposed last may be somewhat in advance of that exposed first; but though this is theoretically true, in practice it has, I believe, never been shown.

These last two instruments mentioned are made by the Thornton - Pickard Manufacturing Company.

Armed with a camera fitted with a suitable lens, a focal plane shutter, and a good time and instantaneous lens shutter—the reader may use his own choice about this, but I prefer the roller-blind type—the amateur need not be afraid of anything that flies, runs, or swims, and his results will be better than he believed possible.

Concluded.

Negative by Ward E. Smith

"AT THE GATE"

"Our hopes, like towering falcons, rise
At objects in an airy height;
But all the pleasure of the game
Is afar off to view the flight."—Prior.

Photography as an aid to Journalism

EVERY person who intends to make his or her living by means of a combination of brain, pencil and white paper, should seize upon and utilize to that end anything which shall seem to be an aid and benefit, says Clarke Helme Loomis, in the *Editor*. I might also add, — that to be enabled to greet one's landlord and groceryman with easy conscience and smiling countenance (superinduced by a healthy condition of the wallet), one cannot have too many strings to one's bow, all opinions to the contrary notwithstanding. Granted the correctness of the foregoing propositions, it would then appear that any "side-line" which gives evidence of possessing the two qualifications of increasing the scope of mind and imaginative faculty and bringing to net an occasional specimen of the "long green," would present itself in a particularly pleasing aspect to a majority of the hard-working fraternity of writers. And when I speak of the "hard-working fraternity of writers," I do not include the fortune-favored coterie of individuals who, in consequence of being at the "top of the heap," can sell any kind of matter, — good, bad or indifferent — by the delightfully simple process of attaching their names to it; I refer to the ordinary, everyday, six-for-a-quarter hack writers, — with which honorable and industrious body, I myself, have the honor of being associated.

Photography — viewed from any standpoint — is certainly the most satisfactory of any one thing that can be taken up by writers. Considered simply as a means of out-door recreation for those predisposed to spend too much time at the desk, it is par excellence; it is also inexpensive, especially if one has the time to do one's own finishing. Again, the possession of a good kodak or camera, and the using of it, arouses any latent artistic talent that one may have. And what is more beneficial to him who must fluently write of the beauties of nature in their countless and everchanging aspects, than the cultivation and broadening of the eye's ability to see and the mind's capacity to comprehend, grasp and retain these beauties? The benefit resulting in this direction is incalculable, and only to be understood and appreciated by one who, with kodak at side, has wandered on a sunshiny day over wooded heights and through ravine and thicket, and then again along the sandy shore of some pleasant stream — the delight in Nature's panorama only equalled by the pleasure of being able to preserve in miniature for future gratification each charming aspect of the great, glorious handiwork of the unknown.

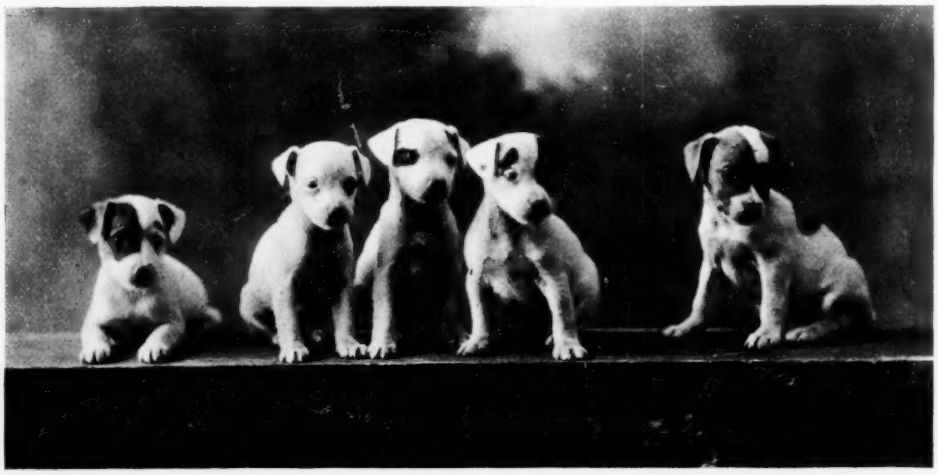
The writer of descriptive matter will also find his kodak of much practical utility, as with it he is independent of local photographers and their excessive charges for photographing anything of a special nature in this line. He can secure his illustrations for the illumination of his manuscript when he wants them and as he wants them, and at a minimum expense. I still retain a very vivid recollection of paying, not many years ago, $9 to a professional photographer for a set of pictures to illustrate a special "story" ordered by telegraph for a Sunday edition of one of the great dailies. I had to have the photographs on the "spur of the moment" and — the photographer knew it. The ownership and ability to use a camera at that time would

Negative by Miss Z. Ben Yusuf *Azuive Engraving Co., Boston*

"I have a silent sorrow here,
A grief, I'll ne'er impart;
It breathes no sigh, it sheds no tear,
But it consumes my heart."

have saved me several dollars; I owned one soon afterward.

Another phase of the question — and last — is this; you will be surprised to learn how many dollars you can easily come into possession of by taking an occasional snapshot here and there and showing the finished picture to the person or persons interested; an order for a dozen will frequently follow, — and without solicitation. If you use your camera with proper judgment you will find it a source of constant revenue in this way. I recently took a series of photographs to illustrate a descriptive write-up, and while the article brought me a fair price, I netted on unsolicited orders for pictures, a sum that exceeded the price of my MS. This was, of course — in the amount — an exception to the rule; but such "exceptions" do occur occasionally and are very pleasant.



Copyright 1896 by C. E. Bullard *Franklin Engraving Co., Boston*

"ANXIOUS MOMENTS"

On Color Photography

THE JOLY PROCESS. BY J. STEWART GIBSON, PH.D.

THE problem of color photography in the process of its solution has developed several new and most interesting fields of investigation. In fact, it has proved itself of a nature far more intricate than was at first anticipated, for it is now known that the exact reproduction of the physical condition, as regards light, is not essential nor indeed desirable in a picture in order that there may be a truthful representation of the original color to the mind through the eye. Not only the physical nature of light has to be taken into account, but of quite as much importance is the physiological operation performed by the eye in its perception of color.

It is to Prof. John Joly of Trinity College, Dublin, that much credit is due for having clearly defined the principles involved in the problem, and worked out a simple, practical method of applying them, so that any careful amateur can

secure for himself most beautiful and accurate results.

A lucid explanation of the process must begin with a fair knowledge of the nature of color vision, and this can be treated of best by referring to the spectrum. It is scarcely necessary here to recall the fact

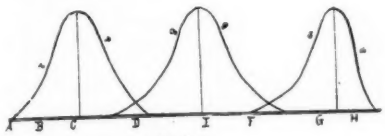


Fig. 1.

that ordinary white light is composed of an infinite variety of wave lengths (in the physical sense) or, if we choose, an infinite variety of colors (in the physiological sense), and that the color of an object results from the kind and number of these components of white light which it does not absorb, and consequently reflects or transmits. This fact once recognized, it is evident that to be able to deal properly with the spectrum, which is nothing more or less than an orderly analysis of white light, is to be able to deal properly with all color, under all conditions. The careful and elaborate investigations of Kœnig, Helmholtz, Arney and others, have firmly established the tri-chromatic theory of color vision, first propounded by Thomas Young. According to this theory, the eye presents to the mind the external color reality (regarded as a physical condition) not by handling each and every hue and tint and shade by itself, but by receiving and perceiving, grouped into three more or less distinct classes, all the endless variety of color presented to it. In other words, the perception of color is realized by an analysis and a subsequent synthesis of the light producing the sensation. This leads up to this first principle employed in this method of color photography, viz.; a photographic analysis of light corresponding to that accomplished by the eye, so that when this analysis is properly presented to the eye, it has only to affect the synthesis, and thereby present to the mind what is virtually the same as the original in the physiological sense. In order to show more definitely the nature of this physiological analysis and synthesis, let Fig. 1 represent a spectrum with the red end at the left, and running through to violet at the right; the small capitals indicate Frauenhofer lines, while the curves marked with the small letters "r," "g" and "v" represent zones of the spectrum with location and color as shown in the figure.

Now it is found that if from a given spectrum qualities of "r," "g" and "v" light be taken (the amounts being proportional to the ordinates X, Y, Z, Fig. 2) and distributed upon a white surface as indicated by the height and range of the *broken line* curves in Fig. 2, the result is, so far as the eye is concerned, a perfect representation of the spectrum. The ordinates of the curves show the distribution of intensity, while the bases indicate the latitude of each of the colors. It must not be supposed that the violet is the brightest because its curve is high; for in fact, it is the least luminous, and a relatively large amount is required to produce even its proper low luminosity. The curves in Fig. 3 show the relative luminosity of these three fundamental sensations, so called; the heavy curve indicating the relative luminosity of the spectrum

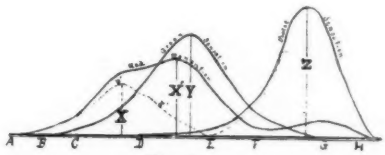


Fig 2

as a whole. If then the kind and quantity and distribution of light is known, which is requisite to faithfully represent to the mind, through the eye, all the external color quality, it only remains to obtain photographically this particular analysis of light. This is secured by obtaining

in three several negatives (Ives) or in the three several linear areas of one linear-structure negative (Joly), taken of the spectrum deposits of silver, the degree of density and range of which correspond to the broken line curves in Fig. 2. From these negatives positives are made, in

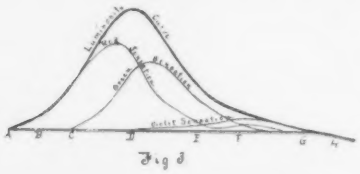


Fig 3

which, of course, the degree and range of transparency correspond to these curves. If these positives are backed with material transparent to "r," "g" and "v" color respectively, and light is projected through them so that the colors are properly superposed (Ives), or juxtaposed (Joly), the analysis is completed, and the eye has only to perform the act of synthesis.

The equivalence of juxtaposition and superposition, under certain conditions, is very interesting and important. It is a well-known fact that the superposition of red and green light is recognized as yellow by the eye; and that similar results occur with other superpositions. The reason for this is quite apparent after a little study in Fig. 2 of the synthesized spectorum. Now the juxtaposing of the same colors will give the same derivations, providing the juxtaposition is properly made. In the Joly process, this is accomplished by placing the colors in very narrow bands, side by side.

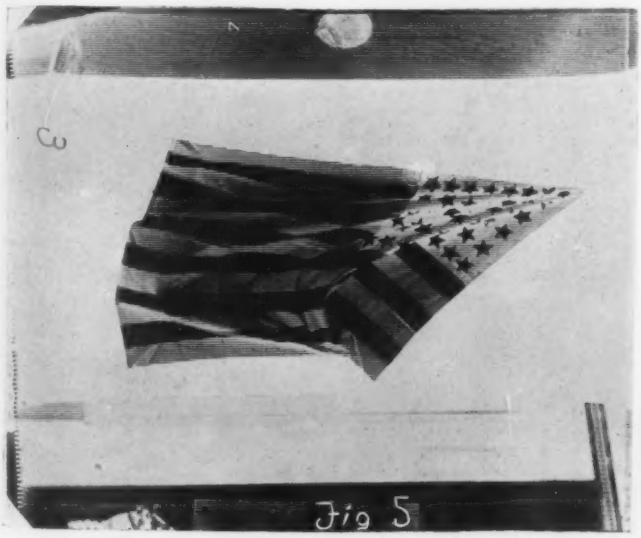
It has been demonstrated that when the three fundamental colors, taken all together, or by twos, or singly, in various proportions, are juxtaposed and presented to the eye so that the combination occupies a visual angle of not more than one or two minutes of arc, that the colors are synthesized and the complex color sensation produced is the same as that resulting from superposition. There seems to be a definite limit to the fineness of structure of the retina, at least, so far as color vision is concerned.

The term, Retinal Unit, has been suggested for this small area, within which color vision is homogeneous; and since the visual angle becomes practically an inscribed angle within the eye, the diameter of the Retinal Unit cannot exceed two or three minutes of area. A simple computation based on this fact will show that for a transparency viewed at a convenient distance, some two hundred and fifty or more lines per inch will be required, in order to synthesize the color perfectly. In showing such a picture with the lantern, it is evident that these conditions with reference to the visual angle must be observed.

Fig 4

The question is often asked why the colors of the screens, by which the photographic analysis is effected, *i. e.*, the taking-screen colors, are different from the fundamental colors employed in the final synthesis? A glance at Fig. 2 will explain this. Examining the curve "2," for instance, it is evident that the part of the spectrum engaged in producing the silver deposit in accordance with the curve is far more than the narrow zone, "r," of Fig. 1. It is in fact such a part and amount of the spectrum that, taken as a whole, it appears decidedly orange to the eye. The same explanation applies to the other taking-screen colors.

Concerning this method as applied in the Joly process, it must be acknowledged that it has thus far proved the most practical, that it is based upon strictly scientific principles, and that the results are very satisfactory.



The picture obtained is in the form of a transparency and consequently the degree of luminosity is wholly under control. All the apparatus and operations are exceedingly simple. The essential articles other than those found in every plate camera, an orthochromatic screen, and a contrivance, usually in the form of a simply constructed plate-holder to keep the taking-screen against the sensitive plate during the exposure.

The taking and viewing-screens are gelatine-coated, glass plates, finely ruled in three several colors, those of the taking-screen varying slightly from those of the viewing-screen, which are red, green and violet.

The photographer, in taking a picture, exposes develops, and makes a positive as usual, but instead of mounting it with a plain cover glass, he superposes the viewing-screen upon it so that the three several colors upon the viewing-screen fall upon the lines on the positive in a certain order corresponding to the order in which these have been derived from the taking-screen. Figures 4 and 5 show a negative and positive of the American Flag. They are strictly orthochromatic, besides having the qualities for a color photograph, and show in what respects a Joly negative and positive vary from the usual negative and positive.

The linear structure is inherent in the nature of the process, but there are very definite limitations, as already shown, under which it is admitted, and these conditions must be carefully regarded. If, however, the photographic manipulations are rightly conducted, with due attention to the explanation of the process above given, and the viewing conditions properly arranged, the conspicuousness of the lines almost, if not entirely, disappears.

Lights and Shades

The Camera Club, New York

THE Camera Club of New York is now "at home" in its new quarters on Twenty-ninth street, and a better arranged suite of rooms it has never been my lot to see. The pervading "esprit de corps" too, is something which other photographic clubs nearer home could well afford to imitate. Everything necessary to the perfect production of photographs is provided on an abundant scale, even to a roof studio, which I should deem to be the most elevated one in the country.

As a sort of House warming, a collection of prints by members has been placed on the walls of the main room of the club, and considering the short space of time given in which to prepare the pictures, the exhibit is a perfect one. I was given to understand by the president, Mr. W. D. Murphy, that scarce half a dozen pictures were rejected, which speaks volumes for the work of the members to any one who has been fortunate enough to see the collection.

Where there is so much that is good, it would be out of place in the small space allowed me here, to go into the merits or demerits (if there were any) of the pictures. Still I must mention Charles I. Berg's "Repentant Magdalene." It is the most glorious production of the combined efforts of camera and artist that I have ever seen, in this or any other country. Words will not do justice to it. I can only recommend every reader to go and see it for himself should he ever have the chance. W. D. Murphy's "Choristers," W. A. Fraser's "Night in Columbus Circle," and W. B. Post's "Frosty Morning," are other pictures which are bound to attract attention wherever shown, for the consummate skill shown in manipulation of camera and the after processes.

On Film Markings

USERS of roll and cartridge films are sometimes troubled by the appearance on a correctly exposed film, of little black markings, breaking into finer divisions like branches of a tree. This is not, however, to be compared with the markings of old films, for it occurs also on the freshest. This phenomenon has puzzled many people, so it may be of interest to describe some experiments which have been made to discover the cause.

Experience with the sparks produced from Leyden jars and frictional electrical machines suggested electrical origin for these peculiar markings. The sparks produced by the electrical machine are really but miniature lightning discharges, and these fork and break up in every direction.

On a cold, dry day many of our readers have, undoubtedly, stroked pussy's fur the wrong way and heard and perhaps seen in a dark room, the sparks from the fur, much to the consternation of the cat.

If one takes a spoiled film and strips the sensitive emulsion partly off, on releasing the strip of emulsion it will fly back and stick tightly to the gelatine support, with a crackling noise. In a dark room the sparks can be plainly seen. When loading a metal plate holder, the same curious effect was observed when the rubber slide was quickly withdrawn,

and in all wooden holders, although in a much less degree.

It is well known that in order to brush a plate free from dust, the brushing must be done deliberately or else the film will be strongly electrified, and attract every dust particle within a few inches of the plate. The explanation of the film markings seems to be briefly this; when a film is wound by jerks instead of by a steady motion the little dust particles on the film becomes centres of electrical action and throw out sparks along the surface of the film. Now the electric spark has an enormous actinic power so it is but natural that each spark should be recorded by the film.

In order to prove this theory we unwound a small cartridge film and fastened it to a bobbin in a lathe in the dark room. The lathe was started at high speed and the film rolled up with visible sparks. It was then developed and found covered with markings.

Such phenomena can only be duplicated when the air is cold and very dry, so that ordinarily the method of film winding is immaterial. It is advisable, however, on cool, dry days to take time and pains to reel off the film slowly and steadily.

C. W. STILES.

The Manipulation of Developing Papers

Some experiences with Velox

THERE are now so many papers on the market, each one possessing certain advantages that the others lack, that it is almost a matter of impossibility for the amateur to keep track of more than a few of them. What is more to the point, is that the amateur should examine into the various papers, and having found one, most suited to his needs should thereafter stick to that brand. His work will gain in excellence, and he will eventually be many dollars in pocket.

Negative by C. W. Tobey

It is not my purpose here to say that one paper is better than another, but I am going to give in this and in subsequent numbers some experiences in the working of the different papers, with hints which may enable the reader to overcome certain pitfalls.

For myself, I am an ardent user of Velox, and will accordingly start by noting a few of its characteristics.

It is a developing paper; that is, the image is impressed by a brief exposure to light and then made visible by development; in this respect one is liable to class it with ordinary bromide paper, but, unlike bromide paper, Velox may be handled and developed by daylight, or by the ordinary means of artificial light. At no stage of the proceedings does a dark room become necessary. Development

is almost instantaneous (as in platinotype). The developed print is placed at once in the fixing bath, and is then washed in the usual way.

No tray is required for development, the print being simply supported on a sheet of glass, an ordinary dinner plate, etc., while the developer is wiped over it with a pad of cotton wool.

The result is a rich print with pure blacks, clean whites and delicate halftones, with a surface varying according to the class of paper used.

The different grades of Velox all yield comparatively soft tones in printing, but with sufficient strength even from weak negatives. Very dense negatives, however, are somewhat difficult to work from.

With this short introduction in favor of Velox (and I speak with a perfect knowledge of the difficulties usually besetting the amateur who can practice photography only by fits and starts) I will give in detail the routine of printing and development.

With a tube of developer and a packet of "carbon Velox," we are ready for a trial. Put the contents of one tube into a bottle and add four ounces of water, and shake until dissolved. Adjourn to the kitchen * and light the gas, which should be placed about six feet or more from the sink. At this distance the packet of paper may be opened in perfect safety, but it is of course advisable not to expose the paper more than is necessary. Put a piece of the paper in contact with the negative, and hold the printing frame *close* to the gas jet — within three or four inches — moving it so all parts of the negative receive a fair share of the light. The first trial should be made with a negative of good average density in the high lights, and clean shadows, and the exposure should be twenty to thirty seconds by the watch, not by guess work.

* I say "kitchen" merely to emphasize the fact that a dark room is entirely unnecessary.

Remove the frame to a good distance from the gas, or other light and take out the print, placing it (face up) on a sheet of glass. Pour the developer into a cup or graduate, immerse a lump of cotton wool in it and immediately wipe it as quickly as possible over every part of the print. Development takes place at once, and may appear to be uneven, but this need not worry you at all. All you have to do is to be sure that the developer covers *every part* of the surface; the picture will very soon become of even density all over, and development will then cease. In from ten to twenty seconds development is complete, and the print may be at once transferred (without washing) to an acid fixing bath, where it should be moved about for the first few seconds in order to ensure even action and freedom from stains. After fifteen minutes' immersion in the fixing bath, the prints may be washed for from thirty minutes to an hour in running water (or changes of water), and the work is finished.

The light used should be constant in order to obtain equal results in printing from any one negative.

The sensitiveness of the paper is comparatively small, still it is affected in a slight degree by exposure to light, and should, for perfect results, be handled only in a yellow light. Only expert workers should and can profitably handle the paper in daylight or ordinary artificial light.

I have tried various developers and find both Rodinal and Amidol to give excellent results. A developer prepared by the manufacturers, called M. Q., is also an excellent one, and is, perhaps, for beginners to be recommended as it supplies the chemicals in proper proportions for immediate use. All the developers need the addition of more or less bromide of potassium solution, the correct quantity yielding pure black tones and brilliant

Negative by Henry Lewis Johnson — *Moore Brook, Acworth, N. H.*

"By the dark pool where the troutling
Glances from his stony bed."
Blackie: "Lays of Highlands."

Printed in colors by the Thos. P. Smith Printing Co., Boston

Supplement to PHOTO ERA, June, 1898.

whites. Too much bromide will cause the print to turn first green and then brown. This last tone is very beautiful but difficult to attain equally over the print.

I have always found it better to develop the print in the darkest corner of the room, well shielded from the light, when it was not possible to work in a yellow light, and this I would advise all amateurs to do. Care must also be taken to keep the prints moving in the hypo bath for a minute or so and have them well immersed, or unsightly yellow brown stains will appear.

With these few precautions taken, there is hardly a paper which is so easy of manipulation and so productive of beautiful effects.

The following is an excellent formula to use : —

METOL-QUINOL DEVELOPER.

Water	10 oz.
Metol	7 gr.
Sodium sulphite, crystals pure	½ oz.
Hydroquinone	30 gr.
Sodium carbonate, desiccated *	200 gr.

Ten per cent bromide of potassium solution, about ten drops.

ACID FIXING BATH.

Dissolve		
Hypo	16 oz.	Allow to settle, decant, and use the clear solution. Keep this solution acid. If necessary add occasionally a few drops of acetic acid until it turns blue litmus paper red.
Water	64 oz.	
Alum	4 oz.	

* If you use crystallized carbonate of sodium, take double this quantity.

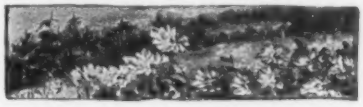
An acid fixing bath hardens the film, prevents yellow stains, and does not discolor. This bath keeps well and can be used over again as long as it is strong enough.

A few words now as to what must *not* be done. A weak developer must not be used, or the image will be of a greenish or brownish hue instead of a pure black; the same defect follows the use of an oxidised developer or one containing too much bromide. In summer, more than fifteen minutes' immersion in the fixing bath sometimes causes brown blacks, but this does not apply when the temperature of the bath is not higher than 60 deg. F. The prints must not be left to lie in a heap in the hypo, or they will not be properly fixed; they should be moved during fixing. Impure sulphite must not be used, or the color of the deposit will suffer.

Should any readers meet with difficulties in working the process, I need hardly direct attention to the willingness of the Editor to help beginners out of their troubles.

Negative by Joseph Prince Loud *Franklin Engraving Co., Boston*

PULPIT HARBOR, NORTH HAVEN, MAINE



The Annual Conventions

Photographers' Association of America

THE annual convention of the Photographers' Association of America will be held at Celeron, on Lake Chatauqua, N. Y., on July 11 to 16, inclusive. Here will undoubtedly be afforded an opportunity to see the best work of American and Canadian photographers. The location is ideal, and to the photographer who can spare the time, as everyone should make a point of doing, it affords not only a pleasurable outing, but a source of instruction which should be of considerable profit in the following year's business. The secretary is George B. Sperry, Toledo, Ohio.

Negative by H. A. Frink Engraved by J. P. Simonds & Co., Boston

"There's music in the gushing of a rill."

The Photographer's Club of New England

THE second annual convention of this wide-awake Club will be held at the Copley Hall, Back Bay, Boston, on July 27, 28 and 29, and there will undoubtedly be a very large attendance. An exhibition will be held in connection with the convention, and medals will be offered both to amateurs and professionals.

We give the following particulars, supplied us by the genial secretary, Mr. Bartlett F. Kenney, 270 Boylston Street, Boston, Mass., of whom all inquiries should be made: —

Special. Professional Photographers outside of New England. One Portrait, no restriction as to size, 1st gold medal, 2d silver medal.

Special. Amateur Photographers. Open to the world. One Portrait, no restriction as to size, 1st gold medal, 2d silver medal.

Special. Amateur Photographers. Open to the world. One View, no restriction as to size, 1st silver medal, 2d bronze medal.

Grand Prize. One Genre Picture, 11x14 print or larger, subject to be chosen by the photographer, the title to be inscribed, 1st gold medal, 2d bronze medal, 3d diploma.

Class A. Six Portraits, to be 13 inches or larger, 1st gold medal, 2d bronze medal, 3d diploma.

Class B. Twelve Pictures, to be 7½ inches and under 13 inches, 1st bronze medal, 2d diploma.

Class C. Twelve Portraits, cabinets or smaller, 1st bronze medal, 2d diploma.

Class D. Twelve Portraits, no restriction as to size, 1st bronze medal, 2d diploma. [Competitors in Class D must be from towns of 15,000 or less.]

Class E. Twelve Portraits, no restriction as to size, 1st bronze medal, 2d diploma. [Competitors in Class E must be from towns of 5,000 or less.]

Class F. Views, interior or exterior, six pictures, no restriction as to size, 1st bronze medal.

Class G. Views, marine, six pictures, no restriction as to size, 1st bronze medal.

Class H. Portraits or Groups, from negatives made by artificial light, six pictures, no restriction as to size, 1st bronze medal.

A Diploma will be awarded for the most tastefully arranged Exhibit.

Don't put off printing your exhibit for the convention until the last minute. Remember that better prints can be made in the cool season than are possible to produce in hot weather.

APPOINTMENT OF JUDGES

The judges to be appointed by the Executive Committee, and their identity to remain unknown until after the awards are made.

RULES AND REGULATIONS

1. Officers of the Club will not compete for prizes.

2. Competitors cannot enter more than one portrait class except Class H.

3. Members from small towns may compete in the higher classes if they wish, but cannot enter more than one portrait class.

4. All meritorious pictures not for competition will be carefully hung.

5. Competitors for Grand Prize, Class A, or both, cannot compete in any other portrait class excepting Class H.

6. All exhibits must be framed ready to hang. We wish to call special attention to this rule. *No loose prints will be accepted.* The frame may enclose entire exhibit, or each picture framed separately. We recommend narrow, simple mouldings.

7. The dimensions given applies to extreme length or breadth of print in all cases and not the mount.

8. Should any exhibitor use his influence in any way, directly or indirectly, with the judges during their term of office in favor of any exhibitor, it shall be the duty of the judges to strike out their exhibit from the list.

9. Ten marks to be the highest, and given for pictorial effect. In the Genre Class ten points are to be given for pictorial effect and ten for originality.

10. Art exhibits must be sent to P. C. of N. E., Copley Hall, Back Bay, Boston, Mass. *And all charges prepaid.*

11. Screw box covers instead of nail; put your home address on under-side cover for return of pictures; put screw eyes and picture wire in box, and ship exhibits early.

12. All boxes and packages will be accepted at any time previous to the convention, so that photographers need not feel any uncertainty about the safety of their goods. No exhibits will be allowed to be removed from the hall until the close of the convention.

13. The pictures winning the grand prize in the Genre and A classes, to become the property of the Association, for the purpose of forming a permanent exhibit.

14. Entries for art and stock departments must be made to Bartlett F. Kenney, Secretary, 270 Boylston Street, Boston, Mass., prior to July 21, 1898, as no assurity of space will be given after that date.

15. Exhibits for stock department to be shipped to Bartlett F. Kenny, Secretary P. C. of N. E., Copley Hall, Back Bay, Boston, Mass., *charges prepaid* and placed in position by July 26, 1898.

EXECUTIVE COMMITTEE

W. H. PARTRIDGE, *President*, 2832 Washington Street, Boston.

BARTLETT F. KENNEY, *Secretary*, 270 Boylston Street, Boston.

W. H. ROBEY, *Treasurer*, 34 Bromfield Street, Boston.

J. H. LAMSON, *Vice-President for Maine*, Portland.

HOWARD A. KIMBALL, *Vice-President for N. H.*, Concord.

JOHN HOWE, *Vice-President for Vt.*, Brattleboro.

HENRY H. PIERCE, *Vice-President for R. I.*, Providence.

G. M. BOLTON, *Vice-President for Conn.*, Rockville.

Do not fail to become a member of this association, and reap the benefits which must occur from your connection with it, by hearing art talks, and seeing the artistic work of this convention. An exhibit of your work, in competition with others, will be one of the very best investments you can make for the year 1898 and for your future success.

Photography at Night

WHILE the picturesque effects of night scenes have often been reproduced by painters, but few have attempted to retain such effects with the aid of the camera. So-called moonlight photographs, where the camera is pointed toward the sun — are very common, almost too common now-a-days, but genuine night pictures are rare, and, consequently have all the charm of novelty.

A few ideas as to how to produce successful pictures at night may not come amiss to our readers, and a little practice during the warmer nights of summer will be productive of all the better results when the ideal time for night studies comes round again, viz., fall and winter.

First as to plates. Experience has shown that an isochromatic of medium speed is the best. It is important that the plates should be well backed. Using a stop *f*/8, the exposures will vary from ten to forty-five minutes, according to the amount of light in the sky and the definiteness desired in the negative. The best time for a good general effect is when there is just a suspicion of light left in the sky to throw towering subjects into relief, but not sufficient light to make them distinct of themselves. It is this vanishing ghost of daylight which enables the negative to retain the landscape effect, without which the various lights would appear like holes cut in a black surface. Very bright moonlight will also answer the purpose, but not so well as the least perceptible trace of daylight. The result of this is, that by twilight in its dying stages, the necessary exposure is from ten to twelve minutes only; but even in the brightest moonlight an exposure of from half an hour to three-quarters would be necessary to secure the same picture.

Snow is naturally of great assistance owing to the reflected light it lends to the scene and for a similar reason, it is invariably the case that the best results can be obtained on wet nights, or when it is possible to obtain a sheet of water in the foreground with lights behind.

A weak developer is the best to use, and in printing, striking effects can be secured by the use of carbon papers.

The photographer who desires to attain distinction in this line of work must be impervious to cold, to rain and to discomfort of all sorts, not excluding the sarcasms of the small boy and the inquisitiveness of the stray policeman.

The length of exposure is so great, that the negative does not retain an impression of moving objects, a fortunate circumstance where city scenes are concerned. Care however, should be taken, not to get the camera so that the lights of passing vehicles can reflect on the lens, as a curious effect of horizontal lines on the negative, may be the result, and an otherwise effective study ruined.

We shall hope to reproduce one or two night pictures in our next number, and thus lend force to the above remarks. The field is comparatively new and should prove a fruitful one.

Sing songs of summer passing fair." — Richard Bird.

Negative by Joseph Prince Loud *Engraved by J. P. Simonds & Co., Boston*

"TOPSFIELD MEADOWS"

"The low of cattle, the hum of bees,
Makes music in the sun-drenched air;
The whispering branches of the trees
Sing songs of summer passing fair." — Richard Bird.

On the Picturing of Waves

BY J. W. SOWERBUTTS

NO form of our many-sided art is so exhilarating, both to mind and body, as wave photography. It needs not only artistic perception, but a cool head, in order to get successful results; for, if the right moment is not seized, two things almost invariably happen. First, the effect is lost, and a wait more or less long, entailed; and second, there is usually a good chance of a wetting, or, at least, of being drenched by the spray.

The photographic requirements for good work are first, a camera, which can be held in the hand preferably, with a full-sized finder; second, a shutter giving more exposure to the foreground, if possible, and capable of running at a speed of one-fifteenth to one-thirtieth of a second; third, a backed plate of medium rapidity — if isochromatic, all the better.

The shutter is best placed before the lens, or, if behind, the lens must be protected as much as possible from the spray by the hand or a flap. In any case, whether protected or not, a look should now and then be given to it to see that no spray has deposited upon it. A pair of sea-boots is also an advantage, for often it is necessary to go *into* the water to get a pleasing photograph. The shutter should not be set quicker than one-thirtieth second, or the water will appear as though carved in stone, whilst the idea we wish to give is of the grand roll and dash of the billows. Care should be taken to get the sky line horizontal, as doing so, to say the least of it, saves trouble afterwards. The shutter should not be snapped at the first wave that comes in, but the picture should be composed mentally, and then, after waiting for a while, a wave will curl just where we want it. Then, and not before, must the shutter go. Of course, this means waiting, and will not suit all people; but if pictures are to be made, we must be content to wait. After exposure comes development, and in developing wave photographs it is best to keep them tolerably thin.

In printing, I think a black and white process is preferable to a chloride paper. Platino-bromide, platinum, carbon (black), are all suitable. Occasionally, blue, green, and sepia carbon, sepia platino-type, and ferro-prussiate, give pleasing effects.

These all have their little peculiarities. Carbon and ferro-prussiate require rather denser negatives than bromide. These peculiarities should be remembered in exposure and development, and the negatives made to suit the printing process.

A last word is, in seeking wave pictures, go by yourself, unless you have a real friend who sees eye to eye with you, and is able and willing to clamber over rocks slippery with clinging seaweed and walk across stretches of wet sand interspersed with pools and water channels. Therefore, to most picture-makers I say, go alone, and take a plentiful supply of plates with you, because I always find, just after my sixth and last plate is exposed, a magnificent wave comes in, and if I only had another plate I should be sure to have secured a medal picture. — *Photographic News.*

Open Criticism

Franklin Engraving Co., Boston

SCHOODIC LAKE, MAINE

This is a new departure.

We want our readers to coöperate with us in making it a successful one.

We reproduce this month a picture sent us by an amateur for criticism. We have not trimmed the print. It is reproduced in its entirety.

Now criticise it. Criticise it from every point of view. Use a post-card and limit yourself to a hundred words.

The best criticisms will be published next month, when a new picture will be given. The writer of the best criticism will be given a year's subscription to the PHOTO ERA, either for himself or a friend, as may be desired.

We believe this method of criticising photographs submitted will teach the amateur more than the criticising of a lot of pictures without reproduction of those under discussion. Address your post-card to the Editor, and send in not later than July 1.

Trade Hints

MR. HOLST, who now represents C. P. Goerz, makers of the celebrated *Goerz Double Anastigmat Lens*, has been directing his attention lately to focal plane shutters and will give some new ideas on this subject in one of our coming numbers.

THOSE of our readers who are looking forward to a pleasant outing this summer with their cameras, will find the Granite hills of New Hampshire, a pleasant place to sojourn among, and to get their negatives for next season's exhibition pictures. Special improvements have been made in the new Mt. Pleasant House, and also at Fabyan's in the White Mountains, for the accommodation of guests. The Senter House at Centre Harbor, Lake Winnipesaukee, a charming location for landscape work will be open this season as early as June 11.

KNOCKING about the Berkshire Hills recently, I dropped in on the Blake Dry Plate Works at North Adams, Mass., and had a most interesting interview with Mr. Marble. I learned that their New Berkshire Plate, which they have spent so much time and money in perfecting, is now ready for the trade. It is an extremely rapid plate and I would recommend a trial of it to such as are experienced in handling this kind of plate. Their other brands of plates are also finding great favor with the public.

PHOTO ERA

An Illustrated Monthly Magazine of Progress in the Science and Art of Photography.

Published and copyrighted by the proprietors
NEW ENGLAND PHOTO ERA PUBLISHING COMPANY,
J. C. ABEL, *Manager*,
180 Tremont Street, BOSTON, MASS.

Contributions relating to photography in any and all of its branches will be received for publication.

SUBSCRIPTION RATES.

The annual subscription in the United States, Canada and Mexico is $1.50
In other countries within the Postal Union . . 2.00
Always payable in advance.
Single copies 15 cents each.

Advertising rates on application to the manager.

ADVISORY BOARD.

J. W. BARBER. HENRY LEWIS JOHNSON.
JOSEPH PRINCE LOUD. GEORGE JEPSON.

VOL. 1 JUNE, 1898 No. 2

June is a scarlet rose
The blossom of the year;
Her crimsoned crumpled petals lie
To mark the footsteps of July. — GOODALE.

At this season of the year, New England is gorgeous in all her natural beauty. The perfumed blossomings of the spring orchards and clover fields are now purpling the air with their bloom, and ripening into harvest fragrance. Royal June with her long summer days and lingering twilights has come. The sweet smell of new-mown hay is here, and the air is filled with the floating melodies of song birds.

For the camerist it is a delight simply to live. The tender tints in the spring foliage have now deepened into a darker green, and such foliage, taken at this particular time, produces a fine effect.

The art of landscape photography is perhaps one of the most delightful and inspiring branches of the whole art of photography. It consists in the art of discovering the beautiful in common things, a faculty so essential for producing artistic work, and yet so rare and so often lost sight of by the amateur.

Nowhere and at no time can this faculty be cultivated to better advantage than right here in New England, during this royal month of June.

Ourselves. In harmony with nature, we ourselves are feeling particularly happy over the kind reception accorded our first number. On every side, from the press, through the mails, enconiums of praise have been lavished upon it, for all of which we are duly thankful. The dealers have ordered generously, and the subscriptions and trade orders have been so large that our first edition was exhausted a few days after leaving the press. Such an experience, we believe, is rare in the history of new publications of a similar character to the PHOTO ERA. It encourages us to hope that we have struck the right vein. We have endeavored to give the public in this magazine an artistic publication of the highest photographic excellence, for the lowest possible price. The results have demonstrated beyond the shadow of a doubt, that our efforts have been understood and appreciated by a public quick to recognize and reward meritorious effort. And while our June number will be found to be a distinct advance upon our first issue, nevertheless it is not yet up to the ideal that we hope to make for the PHOTO ERA. Our work, as the name implies, should mark an era or epoch in the history of the science and art of photography.

Competitions. Several of our readers having written us concerning the shortness of time in which to prepare pictures for our competitions, we have decided to extend the date of closing for I. Open Competition, and A. Subscribers' Competition, until July 1.

II. Open Competition.

Will close August 1. The subject is:

"The sun went down in clouds, and seemed to mourn
The sad necessity of his return."

All particulars and conditions of all three competitions were given in the first number, which can be obtained from the publishers.

Subscriptions. On another page we make an interesting offer to our readers to induce them to become regular subscribers to the PHOTO ERA. We have made arrangements with a well-known firm of publishers of books on photography whereby we can offer any of their books and a year's subscription to the PHOTO ERA, at little more than the price of this magazine. We hope that there will be many who will take advantage of this.

Current Illustrations

The colored supplement, from a photograph by Henry Lewis Johnson, in this number, shows a remarkable effect in water currents. A casual observer would even be willing to declare that either the negative or the print or the plate had been retouched. This, however, is not the case. The whirlpool markings are the result of small particles of foam floating on the surface of the water and following the current of the stream. We have seen the negative ourselves and can vouch for the accuracy of this statement. The supplement is the work of the well-known printing house of Thomas P. Smith & Co., Boston, Mass.

"Flood-tide," our other supplement for this number is a glorious piece of work, and one of Mr. O. A. Eames' best efforts. There are few, if any, who can surpass Mr. Eames in cloud and water effects and we are greatly pleased to be able to present our readers with this picture as a supplement. It represents the docks at Charlestown, Boston, Mass.

Miss Ben Yusuf of New York, has made for herself a name in figure studies. The full page illustration which we give this month, facing page 30, is an excellent example of her work. She has recently opened a studio at 124 Fifth Ave., New York, where we hope she will have the success which her work so richly merits.

Phenix. R. I., though not a large populous centre, nevertheless boasts a camera club whose work so far as we have seen is of a high order of merit, and gives excellent promise.

We reproduce a picture this month by Mr. Ward E. Smith the president of the club, entitled "At the Gate," and have reserved one or two for our next issue.

We have been fortunate, this month, in again being able to reproduce some of Mr. J. P. Loud's pictures. His "Topsfield Meadows" facing page 42 in this issue, has almost the appearance of a photograph from an oil painting, so beautifully soft is the texture. The two surf pictures which we have used to illustrate Mr. Sowerbutt's article on the "Picturing of Waves," are also very clever, and show good composition. Mr. Loud is the energetic and highly esteemed president of the Boston Camera Club.

Our remaining pictures. Another of M. Bullard's charming animal studies, will be found on page 32. The puppies look naturally life-like, and the beauty of the picture consists in the general absence of posing effect. Mr. H. A. Frink, C. E., has been sojourning for some time past in the Maine woods, and we shall have occasion in the future to reproduce much of his best work, besides the two excellent examples which appear in this issue.

Exchange and Mart

All subscribers are invited to use this column free of charge, for notices, not exceeding 10 *lines each month.*

Trade ads will only be admitted when paid for. Rate on application to the Publishers.

For Sale. 4¼ x 4¼ Vive in perfect condition. Cost $7.50; will sell for $5.00. D. J. Lindsay, 165 Tremont St., Room 15, Boston, Mass.

Boy's Bicycle For Sale. Never been used. '98 model. Suit boy of 7–10 years. Address C. J., care of PHOTO ERA, 180 Tremont St., Boston, Mass.

We Buy, Rent And sell second-hand cameras and lenses of all makes and sizes. Boston agents for the celebrated Vive cameras. Developing and printing from films a specialty. Boston Camera Exchange, 165 Tremont St., Room 20.